Bangalore Electricity Supply Company Limited

(Wholly owned by Government of Karnataka Undertaking)

SPECIFICATION FOR G.I. WIRES. (8 SWG/10SWG)

1.0 FOREWORD

G.I. Wires of different sizes are used in distribution system for various applications such as earthing of metallic fittings, bearer wire for service cables, guarding of power lines etc.,

2.0 SCOPE

This specification covers details of solid G.I. Wires for use in distribution system.

3.0 APPLICABLE STANDARDS

Except when they conflict with the specific requirements of this specification, the G.I. Wires shall comply with the provisions of IS:280-2006 and IS:7887-1992 or the latest version thereof.

4.0 APPLICATION & SIZES

G.I. Wires covered in this specification are intended for the following applications.

Applications		**Size (nominal dia)**
i) Earthing of transformers, poles	-	**4mm (8 SWG)** (for three phase service lines)
ii) Continuous earth wire for 11KV	-	**4mm. (8 SWG)**

5.0 MATERIAL

5.1 The wires shall be drawn from the wire rods conforming to IS:7887-1992 or the latest version thereof.

5.2 The requirements for chemical composition for the wires shall conform to IS:7887.

5.3 The wire shall be sound, free from split surface flaws, rough jagged and imperfect edges and other detrimental defects on the surface of the wires.

5.4 The wires shall be galvanized with Heavy Coating as per IS: 4826-1979 or the latest version thereof.

6.0 GRADES

G.I. Wires shall be classified into two grades based on their tensile strength as follows:

GRADE	TENSILE STRENGTH (MPA)
i) Annealed	300-550
ii) Hard	550-900

7.0 TOLERANCE ON DIAMETER

The tolerance on nominal diameter at any section of wire shall not exceed ±2.5%. Further, the maximum difference between the diameters at any two cross-sections of wires shall not exceed 2.5%.

8.0 SAMPLING CRITERIA:

Sampling criteria and the tests shall be in accordance with IS-280-2006.

Sl. No.	LOT size	No. of Samples	Permissible Defective	No. of Coils for Chemical requirements
1	Upto 25	2	0	1
2	26 to 50	3	0	1
3	51 to 150	5	0	2
4	150 to 300	8	1	2
5	300 above	13	1	2

9.0 TESTS

The following tests shall be carried out in accordance with IS:280 -2006 or the latest version thereof as per sampling criteria stipulated therein.

i. Dimensional check (dia) -
ii. Visual inspection regarding freedom from defects.
iii. Tensile test. Clause 9.1 of IS-280:2006
iv. Wrapping test (for wire diameters smaller than 5mm) Clause 9.2 of IS-280:2006
v. Bend test (for wire diameter 5mm only)- Wire of 5 mm diameter and over shall be subjected to bend test.
vi. Coating test Clause 11 of IS-280:2006
vii. Chemical composition

10.0 PACKING

10.1 The wires shall be supplied in 50-70 kg coils each having single continuous length. Each coil of wire shall be suitably bound and fastened compactly and shall be protected by suitable wrapping.

10.2 Each coil shall be provided with a label fixed firmly on inner part of the coil bearing the following information:

a) Manufacturer's name or trade mark
b) Lot number and coil number
c) Size
d) Grade (Annealed or Hard)
e) Mass
f) Length
g) ISI Certification mark, if any.

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Guaranteed Technical Particulars G.I Wire		
1)	Name of Manufacturer	
2)	Percentage of Carbon content of the steel wires	
3)	Particulars of Steel Strand	
a)	No. of Strands	
b)	Diameter of each strand mm	
c)	Sectional area of strand Sq.mm	
d)	Min. ultimate tensile strength kg/Sq.mm	
e)	Min. breaking load kg	
f)	Final stress in steel wire	
4)	a) Uniformity of coating duration in and duration of dips minutes	
	b) Minimum weight of coating gm/sq.mt	
5)	Standard over all dia of ground wire mm	
6)	Area of cross section of ground wire Sq.mm	
7)	Guaranteed ultimate tensile strength of ground wire kg.	
8)	Maximum working tension kg	
9)	Approximate resistance in ohms. Per Km. at 20 deg C ohms/km	
10)	Standard length of GI Wire meters	
11)	Tolerance if any, on standard length	
12)	Modulus of elasticity iof G.I Wire	
13)	Weight of G.I Wire kg/km	
14)	Standard weight of G.I Wire	
15)	Weight of empty drum kg	
16)	Gross weight of the drum	
17)	Dimension of the drum	
18)	Initial and final sags and tension and stringing charts whether furnished	
19)	Standards according to which the ground wire will be manufactured and tested	
20)	Test Certificates whether enclosed or not	
21)	Tolerance of wires Dia	
22)	Lay length of G.I Wire	

Firm seal & Signature